UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: G. Arthur   Art Unit: 3661

Re: Application of: David S. Breed et al.

      Serial No.:   09/474,147

      Filed: December 29, 1999

      For: System for Determining the Occupancy State
                              of a Seat in a Vehicle

DECLARATION OF INVENTOR DAVID S. BREED UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

I, David S. Breed, do hereby declare that:

1.   I am an inventor of the invention disclosed and claimed in the above-identified application.

2.   I have been involved in the automotive industry for more than 30 years and particularly, among other things, in the design, development and implementation of automotive safety systems for preventing injuries to vehicular occupants. I am a named inventor of numerous patents, U.S. and foreign, directed to such automotive safety systems.

3.   I developed a system for determining the occupancy state of a seat in a vehicle including a plurality of transducers which provide data relating to the occupancy state of the seat and a processor for receiving and processing the data to obtain an output indicative of the current occupancy state of the seat.

4.   An important feature of the invention is that the processor embodies a trained pattern recognition algorithm created from a plurality of data sets, each data set representing a different occupancy state of the seat and being formed from data from said transducers while the seat is in that occupancy state. As such, the trained pattern recognition algorithm produces the output indicative of the current occupancy state of the seat upon inputting a data set representing the current occupancy state of the seat and being formed from data from the transducers.

5.   I believe that the training of a pattern recognition algorithm for use in monitoring an interior passenger compartment and exterior environment of a vehicle is novel.

6. I am familiar with the prior art cited by the Examiner in the rejections of the claims, namely, Corrado et al. and Breed et al.

7. The prior art cited against the patentability of the previously pending claims, i.e., Corrado et al., does not disclose training of a pattern recognition algorithm. The pattern recognition algorithm used in Corrado et al. is sensor fusion as discussed extensively in the specification on page 7.

8. Sensor fusion is not a trained pattern recognition algorithm in that it uses <u>manually</u> generated matrices of values, each representing a different occupancy state. Features extracted from signals generated by sensors are compared to the matrices of values to determine which comparison provides the best confidence level. By contrast, a trained pattern recognition algorithm such as a neural network involves the input of data into an algorithm-generating program which <u>automatically</u> creates the best neural network which can operationally receive input and provide output based on its training.

9. Since sensor fusion appears to be the essence of the Corrado et al. system, not only does Corrado et al. not teach or suggest using a trained pattern recognition algorithm, i.e., an algorithm trained on test data, but one skilled in the art of occupancy determination systems would not have been motivated to eliminate the use of sensor fusion in Corrado et al. for another pattern recognition technique such as a trained pattern recognition algorithm.

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements on information and belief are believed to be true; and further that these statement are made with the knowledge that willful false statements and the like so made re punishable by fine or imprisonment or both, under Section 1001, Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.

_____   _____July 10, 2001_____
David S. Breed   Date

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